ME: 3 Hours   Max. Marks : 100

PART –A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. What do you mean by 8421 code?

2. State De Morgan's theorem.

3. What is the advantage of 2's complement?

4. What is redundant group? Give example.

5. Draw the symbol of NOR gate and write it's definition with truth table.

6. What is a full adder circuit?

7. Distinguish decoder and demultiplexer.

8. Construct an EX-OR gate using NAND gate.

9. What is a flip-flop?

10. Write any two differences between counter and shift register.

11. What is race-around condition?

12. Mention the applications of T flip-flop.

13. What is asynchronous machine?

14. What is propagation delay?

15. Define the term fan-out.

16. What are the advantages of TTL logic?

17. List the classification of memory.

18. Compare PLA and PAL.

19. What is a macro cell?

20. What is memory decoding?

PART – B

(5 x 12 = 60 Marks)

ANSWER ANY FIVE QUESTIONS

21. a. Minimize the switching function using K-map.

$F(A,B,C,D) = \sum m\ (0,2,3,4,5,7,8,9,13,15)$ (8)

   b. Write short note on Gray code and ASCII code.   (4)

22. a. Explain the full subtractor circuit with suitable circuit.   (8)

   b. Briefly explain the digital comparator with block diagram.   (4)

23. a. Construct a JK flip-flop using SR flip-flop. Explain its operation.   (8)

   b. Draw a 4bit SISO shift register with timing diagram.   (4)

24. a. Describe the Emitter Coupled Logic with an example.   (8)

   b. Construct a two input CMOS NAND logic.   (4)

25. a. Illustrate the Programmable Interconnect Architecture.   (8)

   b. Construct a Pal for the following functions.   (4)

   $Y1 = A'BC'D + A'BCD + AB'C'D + ABCD'$

   $Y2 = A'BCD' + A'B'CD + ABCD$

   $Y3 = AB'CD + A'B'C'D + AB'C'D'$

26.a. Describe the operation of 4:1 Multiplexer. (8)

b. Write short note on error detecting codes. (4)

27.a. Design a mod-9 counter and explain with timing diagram (8)

b. Briefly explain about D flip-flop. (4)

28.a. Compare the TTL, ECL, CMOS logic families. (6)

b. Briefly explain the basic structure of Read Only Memory. (6)

*****THE END*****